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ABSTRACT

The Developmental Economic Education Program (DEEP) has a goal of integrating the study of economics into the kindergarten through grade 12 curriculum. A large number of the school districts in Arkansas are DEEP school districts. This paper discusses the DEEP state network in Arkansas, and evaluates the effectiveness of the teacher educational program at Arkansas State University. The unique features of the State of Arkansas, the recruitment of school districts for the program, training in the DEEP process, and the role of the Arkansas State Council on Economic Education are discussed. Statistical data based on a survey of teachers who participated in summer workshops on economics education are analyzed. The report concludes that the money spent on economics education has been effective in raising the level of economic literacy among teachers. A list of references and several tables of statistical data are included. (DB)

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DEEP and Improved Economic Literacy:

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DEEP AND IMPROVED ECONOMIC LITERACY; THE ARKANSAS MODEL

By Dr. Lawremce R. Dale and Dr. Lonnie Talbert

Economic educators have long recognized that the ultimate success of the movement depends upon the institutionalization of economics into the school curriculum [3,329]. The Developmental Economic Education Program (DEEP) is the key to the success of that effort. DEEP School Districts have made a commitment to integrate economics into the curriculum from grades kindergarten through twelve in a systematic and effective manner. The Joint Council on Economic Education (JCEE), each of the fifty affiliated state councils, the local university based centers and the institutions they represent have agreed to provide support services to the DEEP Districts within their own network. This mutual commitment results in the infusion of economics into the curriculum and provides necessary training to the professional educators who in turn make economic literacy a reality. In a recent national study of high school students' test scores on a standardized test of economic knowledge the authors concluded that;

> The DEEP variable is a significant predictor of economics achievement and contributes to gains in economic knowledge... Teachers need to be encouraged to take more course work in the everchanging world of economics if they are to stay current. One way to do this would be for a school district to make a stronger commitment to economic education through DEEP. [32,255]

Several states have developed a model that uses the framework of the DEEP process to fit the needs of their own state and regional efforts. While every effective program will be uniquely fitted to the conditions, goals, finances and attitudes of its own area we can all learn something from successful programs in other areas.

Arkansas has become very active in the recruitment of DEEP schools since the first ten systems were signed on in 1978. Since that time the state network has surpassed its original goal by establishing 91 DEEP districts by 1990. These 91 districts educate more than 75% of the school children in the state. The Arkansas State Council on Economic Education (ASCEE) has been able to provide programs to educators in 90% of the state's 329 public school districts and private schools.

The Arkansas DEEP model was designed to effectively deal with the state's unique features;

1. Arkansas is geographically the smallest state west of the Mississippi River which has some advantages. The furthest drive from east to west or north to south in the state is about five hours in either direction. Most people can reach the centralized city of Little Rock in about three hours. This makes the territory manageable when the three Centers for Economic Education concentrate in their respective regions; Northeast, Northwest and South. The ASCEE has a central location in the state capital providing an

important backup for the center program outreach.
2. Arkansas has a small but geographically dispersed population. The 2.2 million people in Arkansas, about 1% of the nations total, live primarily in small rural settings. Arkansas has more school districts than any state in the South and most are relatively small in size, many with less than 400 students.
Even the three urban cities of Little Rock, North Little Rock and Pine Bluff are relatively small by national standards.
3. Arkansas is a low tax state. School districts have very limited resources relative to the national norm. Most of the support for Economic Education in the past has come from private sources in Arkansas.
4. Arkansas has a twenty-seven year history of financial and programmatic support for economic education from government, labor, business and the school districts.

These factors were all critical in the evolution of the Arkansas DEEP model. The job of the ASCEE was made easier by the fact that small rural districts in a low tax state are forced to turn to outside organizations for programmatic support. The ASCEE was able to supply this support thanks in large part to the generous financial aid of concerned business, government and community leaders over the past four decades. Districts became familiar with the quality of the ASCEE sponsored programs and were eager to join the DEEP system once it was introduced in the 1970's.

THE COOPERATIVE ROLE OF THE ASCEE, THE DISTRICT AND THE LOCAL CENTER

PHASE I: RECRUITMENT

In the late spring of each year the ASCEE staff, in cooperation with the staff of the three centers for economic education, select school districts from each region to invite into the state DEEP network. Each District Superintendent is sent a letter and information on the DEEP program from the ASCEE office in Little Rock. The Director of the appropriate center also sends a follow up letter to the superintendent about two weeks later. In this letter the Center Director offers to meet with the superintendent and other school administrators to explain the program in more detail. This letter is followed by a phone call, about 10 days later, to set up a convenient appointment time. If the superintendent is inclined to show some interest in the program the Center Director is ready with the appropriate contracts and informational brochures. The Centers have agreed to provide basic services to the District once they join the DEEP Network. The contract must be signed and returned to the ASCEE. In signing the DEEP contract the District agrees to appoint a DEEP Coordinator to plan and execute the district's program. The District further agrees to begin a systematic integration of economics into the curriculum that will eventually encompass all grade levels.

The Center Director or a representative of the ASCEE attends the formal DEEP presentation, at a place designated by the District, whenever possible. In the past 60 to 80% of those Districts recruited have joined the program. This format has proven to be the most useful for a variety of reasons;

1. Since the service commitment comes from both the ASCEE and the local Center, both should be intimately involved in the process from the beginning. The Center Director is frequently in touch with the school Districts and is aware of their needs and interests. The Council staff, on the other hand, may be more aware of statewide goals and the financial capacity of the organization to service the regions' needs. While the lead should and does come from the ASCEE, the Director of the service unit is the one to make the physical contact and arrange for services to be provided to the District.
2. Local ASCEE members and/or the Center Director are involved in the publicity sessions where formal affiliation is recognized but both the ASCEE and the Joint Council on Economic Education (JCEE) are given credit for their support.
3. The large number of small Districts to be serviced requires that center and ASCEE staff share responsibilities for on site workshops and regional seminars so both must be represented in the first phase of operation.

PHASE II: ACTION

PART 1: TRAINING AND SUPPORT

The action phase of the process begins with some basic support and training in the DEEP process. This is usually accomplished in a two day workshop held in Little Rock. The first day of the workshop is reserved for new DEEP Coordinators. This session examines the DEEP process, the responsibilities and rights of the district and an introduction to the variety of services available.

The second day spotlights some special feature or program and is open to all coordinators since support and training must be constantly updated. Some of the recent past programs have focused on the International Paper Company Foundation Awards Program (IPCFAP), Give and Take, The Economics Exchange and Inputs, Outputs.

The DEEP Coordinators are invited to other special events throughout the year, such as the annual ASCEE meeting, the International Paper Company Foundation Awards Program (IPCFAP) banquet and the What Wheel Workshop (designed for teachers interested in the IPCFAP), but the coordinator's meeting is considered a minimal requirement and most of the DEEP Districts are represented.

PART 2: PLANNING

Every fall the DEEP Coordinators are asked to submit a DEEP Action Plan to the ASCEE giving details on timing, target group, activity and special needs from the ASCEE or local center. The action plan establishes the objectives and methods of attaining those objectives of the district for the coming year. These should support the long term goal of establishing an integrated kindergarten through grade twelve program.

Every spring the Coordinator is asked to submit a report on actions taken and the success of the program. If the objectives were met the coordinator should describe the results. If an

objective was not reached then an explanation of the situation should be given along with actions for the new school year.

The Arkansas Model requires frequent attention to the needs of the DEEP District at several points throughout the year. Frequently these needs are filled in a cooperative effort between the ASCEE and one or more of the centers for economic education.

SPECIALIZED WORKSHOPS

The ASCEE and the three centers work together to provide statewide programs including;

1. An annual awards banquet to recognize award winning IPCFAP teachers in the state (Spring semester).
2. An annual workshop to encourage and help teachers considering entering the IPCFAP (Fall semester).
3. A biannual meeting of the professors in the Economics for Teachers Course (Fall semester of every even number year).
4. A biannual meeting of the teachers of the high school economics course (Usually fall semester of every odd year).
5. Materials workshops to demonstrate the latest film series, special materials and computer programs in economics.
6. Special workshops of interest to teachers all over the state.

Every DEEP district is encouraged to be actively involved in the recruitment of teachers for these noncredit workshops and seminars.

THE ROLE OF THE ARKANSAS STATE COUNCIL ON ECONOMIC EDUCATION

The ASCEE plays a critical role in the state network beginning with fund-raising activities which provide the financial foundation for all of the direct costs of the statewide program. The ASCEE must raise about two-thirds of its budget each year; the remainder comes from a legislative grant provided through the Arkansas Department of Education, support from the Joint Council on Economic Education and other external sources.

The ASCEE also plans and conducts all of the statewide programming efforts which have traditionally been the mainstay of the economic education outreach. In recent years the three Centers for Economic Education have dramatically increased programmatic efforts in their respective regions but the ASCEE has provided materials, staff, travel expenses and organizational support for that effort. A large portion of the ASCEE's funds are used to support the highly successful summer workshop program, with at least one workshop conducted by each center every summer.

The ASCEE staff is responsible for direct contact and monitoring of progress in each of the 91 DEEP districts. The ASCEE provides many other services and functions as part of its programming efforts including: support and development of major statewide meetings, seminars and conferences; representing the state's interest at the national level; public relations activities to advertise the programs of the network; representing the network interests with the State Department of Education and governmental agencies; and working with district administrative personnel.

THE ROLE OF THE CENTER FOR ECONOMIC EDUCATION

NONCREDIT WORKSHOPS

In Arkansas the local center serves as an important resource in teacher training, materials development/distribution and consulting. For example, The Arkansas State University Center staff conducted 27 non credit workshops in 13 of the 20 DEEP districts in the Northeast region during the 1988-1989 school year, as well as school sites in some nonaffiliated districts. Topics in the workshops included; Transportation-Infrastructure (Grades 7 - 12; economics, political science and history), Using Art to Teach Economics (K-6 grades), Economics in Political Cartoons, Our City (A primary grades unit), Trade-offs (intermediate grades), Pennywise (primary grades) and Understanding Taxes (senior high school economics and business education).

THE ANNUAL SUMMER WORKSHOP PROGRAMS

The keystone of the Arkansas DEEP Model has always been the summer workshop program. Since 1967 the ASCEE has sponsored a total of 70 workshops with over 3,000 teachers in attendance. At least one workshop has been conducted through each of the three centers since the early 1970's.

This research into the effectiveness of the workshops shall focus on the 22 graduate credit workshops conducted by the staff of the Economic Education Program (EEP) at Arkansas State University for in service classroom teachers, one each summer from 1967 through 1989 except for 1970 and 1978, that provided the subjects for this study. A total of 1,138 educators from districts all over Arkansas have attended these workshops since 1967 at a cost to the Arkansas State Council on Economic Education of just under $400,000, about $335 per teacher.

The goal of this workshop program is to increase the economic literacy of the state's population by; 1) increasing the knowledge of and appreciation for basic economics among precollege teachers and administrators, 2) increasing both the quantity and quality of economics instruction in Arkansas classrooms by providing teachers with a variety of useful teaching techniques and materials, 3) providing additional incentives to encourage creative teaching in general, as well as, with respect to economics instruction and, 4) informing teachers of the services provided by the DEEP network in the state. These same goals have been established for summer workshop programs throughout the nation in what is called the economic education approach. These teachers were exposed to a varied economic education workshop format that included: instruction in basic economics; curriculum sessions led by expert classroom teachers; field trips; speakers; the development of teacher made classroom materials and lesson plans; the use of grade level appropriate film series and other special programs.

1) Increasing the knowledge of and appreciation for basic economics among precollege teachers and administrators.

The first phase of this study is to determine if the workshops are successful in improving precollege educator's basic understanding of, as well as, appreciation for basic economic

concepts. Several studies have indicated the importance of teacher education in improving economic literacy among the general population [19,81 and 5,257]. The Walstad-Soper study [32,254] concludes that each college level economics course completed by a teacher adds .64 of a point to the predicted score of his/her students on the nationally normed Test of Economic Literacy. Teacher education is the most effective tool available to the economic education movement in its goal of improving economic literacy. This paper will evaluate the effectiveness of the teacher education program at Arkansas State University using raw data, Chi-Square statistical analysis and regression analysis techniques.

It has been the policy of the workshop administrators to utilize a modified form of the standardized Test of Economic Literacy (TEL), published by the Joint Council on Economic Education (JCEE), as a pretest (form a) and post test (form b) to every participant to determine progress in understanding basic economics and provide input in determining the final grade in the course. The results of these tests have been kept for every workshop since 1971 and can be found on chart 1. An examination of the raw data, difference between the preinstruction test mean score (PETMS) and the postinstruction test mean score (POTMS), clearly demonstrates that teachers did learn some economics during the workshop. The difference between these mean scores ranged from a low of +3.72 in 1975 to a high of +12.41 in 1988. The PETMS ranged from 10.58 (1981) to 30.42 (1980) while the POTMS ranged from 20.42 (1981) to 36.56 (1980).

A series of Chi-square tests ($x2$) of independence were used to determine if the difference between the PETMS and the POTMS, which showed positive improvement every year, were significant using a critical value of $x2$ established at the .01 level of significance (see chart 1 for results.) The results proved to be statistically significant, the null hypothesis was rejected, for every year except 1973, 1975 and 1977. Teachers did learn economics since the difference in scores cannot be explained by random chance. The evidence also demonstrates a steady growth in the ability of the workshop staff to promote the learning of economics over the years since the gap between the PETMS and POTEMS has been widening in recent years. There has been some speculation concerning the fact that there was no statistical difference in the mean scores in the years 1973, 1975 and 1977. It was discovered that those years contained an abnormally large population of undergraduate education majors. When their scores were removed from the study those years also proved to be statistically significant. This course is designed for inservice teachers and pre-service education majors may lack the same degree of interest or sufficient experience to make the best use of the presentations.

This conclusion supports other research conducted in the past including a study at Southeast Missouri State University [13,6] which concluded that teachers not only learned economics under the economic education workshop approach but the difference was greater than for students in a regular economics class setting, primarily because of interest in the subject matter and the practical nature of the workshop.

2) Increasing both the quantity and quality of economics instruction in Arkansas classrooms by providing teachers with a variety of useful teaching techniques and materials.

Teachers who have attended the workshop clearly have a better understanding of basic economic concepts but do they appreciate economics and its importance in the overall school curriculum, particularly as it relates to that teacher's specific curriculum and lesson planning. A recent national study concludes that;

> Teachers of economics believe that all teachers, themselves included, should be required to take considerably more courses in economics than they have taken. [5,258]

This same interest in economic literacy is not shared by the profession as a whole since only 25% of the nations teachers have ever taken a single course in economics in either high school or college [35,1].

Earlier research conducted at West Texas State University [14,311) indicates that the economic education workshop experience does create more favorable attitudes toward economics in the curriculum as expressed on a pre- and post-course survey. The same survey was used with teachers in the Arkansas workshop in 1987, 1988 and 1989. Since these teachers had committed themselves to a two-week course in economic education it was assumed that they believed it to be an important part of the curriculum. This assumption proved to be valid with teachers giving a mean rating of 4.6 on the Teacher Attitude Survey (TAS), with a maximum of 5.0 indicating strong agreement with the idea that economics was an important part of the elementary curriculum. The ratings at the secondary level were even higher with 123% respondents strongly agreeing on the importance of economics and no disagreement. The statistically interesting difference came when teachers were asked if it was important that they ; 1) understand basic economic principles and, 2) teach those principles in their own class setting. The workshop did not change their thinking concerning the importance of economics but it did change their attitude toward the importance of including economic instruction in their classrooms. A majority of 61% of the elementary teachers and 89% of the secondary teachers stated that they would include some economics instruction in their curriculum as a result of the workshop experience.

This attitude change came with an overwhelmingly favorable response to the workshop experience. On the Economic Education Workshop Evaluation (EEWE) form 81% of the three workshop groups combined rated the workshop outstanding in some or all respects (97% in 1989, 98% in 1987 and 45% in 1986 workshop as outstanding in every or some respects). Chart 2 demonstrates that this favorable response to the economic education workshop approach has remained consistently high over the 22 year history of the program at Arkansas State University.

Teacher attitude toward economics is critical if teachers are to include economics in their curriculum plans. The Baumol-Highsmith study indicates that;

> Students share with their teachers many of the same goals for studying economics, but students believe that these goals are less important than teachers believe them to be. [5, 257]

If students are to be motivated to learn economics their teachers must first be interested in the subject matter and capable of teaching it effectively. Students enrolled in economics courses seem to be very favorable to the subject according to the Baumol-Highsmith study with 67% of the students indicating a favorable attitude toward economics subjects and only 13% disliking the subject. Excited enthusiastic teachers will improve the level of economic literacy once they start teaching economics in their classroom.

Teachers leave the workshop experience with a better understanding of economic concepts believing that economics should be an important part of their curriculum. This does not mean that this new attitude will be reflected in long-term changes in classroom behavior. The Economic Education Survey (EES), see Appendix 3, was mailed to all 277 graduates of the 1985 through 1988 workshops to determine; 1) if they were teaching more economics or less than before the workshop and 2) what factors were influencing their behavior.

Of the 277 surveys mailed, representing 100% of the population to be surveyed, 5.5% were returned with a notice that the addressee had moved or was no longer teaching, 11.53% were mailed to a district with a substantial number of graduates and cannot be accounted for, 60.13% were returned completed or partially completed and 22.74% have not been returned. Despite the fact that return addressed, stamped envelopes were included. This is a phenomenally high rate of return for a mailout survey. This rate of return indicates that the teachers, after a three month to four year period, still have strong interests in the economic education workshop experience and the subject matter in general.

The survey asked teachers to determine the amount of classroom time spent teaching economics or economics as integrated into other subject areas (see chart 3.) An overwhelming 83% indicated that they did spend some time teaching economics with 13% indicating that they spent 50% of their time or more teaching economics. On average secondary teachers spent 35% of their time teaching economics, twenty-two (8% of the total) of the respondents were economics teachers. Elementary teachers spent an average of 17% of their time teaching economics. These statistics indicate that teachers, who are graduates of the workshop, are spending a significant amount of time with economic subjects and content materials. Most surveys indicate that economics has not been given a high priority in the nations schools, certainly much less than is indicated by this group of teachers [35,1]. Sixty-one percent of the workshop graduates indicated that they spend more time teaching economics than they did before the workshop experience, with only 4% indicating less time spent teaching economics.

A modified form of the survey was distributed to six area principals, randomly selected, and they were asked to give the

survey to five classroom teachers on a random basis. This served as a control group. Forty-six percent of the control group surveys were returned. This group indicated that only 41% of the respondents included economics instruction in their classroom. On average 11% of the control group's curriculum was devoted to economics at the secondary level and 3% at the elementary level. A Chi-square test ($x2$) of independence between the responses of the control group and the survey group at the .01 level relevant to the amount of time spent teaching economics was conducted. The null hypothesis was rejected indicating that workshop graduates were more likely to teach economics than the control group, as would be expected.

It is important to note that workshop graduates who frequently utilize economic concepts in their classroom have a better understanding and retention of economic subject matters than those who utilize economics on a limited basis [16,1]. Since a large portion of the ASU workshop graduates are spending significantly more time teaching economics they are also enhancing their own economic knowledge in the process. The workshop experience is not an end in itself but serves as a foundation and catalyst for long-run improvements in teacher quality.

The survey ratings information was used to set up a regression analysis to determine what factors were most influential in predicting the amount of time spent on teaching economics. For the purpose of this computation the information from teachers whose primary duty requires teaching economics were excluded from the test results. After econometric testing for possible adverse effects of multicollinearity and heteroscedasticity a simultaneous multiple linear regression analysis was established using the following hypothesized relationships;

$$TTEI = b0 + b1SM + b2PI + b3SAE + b4IA + b5WEM + b6IS$$

TTEI = Time teachers spend in economics instruction (independent variable)

SM = State Mandate Rating

PI = Personal Interest in Economics

SAE = School Adminstrator Encouragement Rating

IA = The International Paper Company Foundation Awards Program

WEM = The Workshop Experience and Materials Rating

IS = Importance for Students (understanding economics)

The results of the regression analysis indicated that the following factors were significant contributors to the amount of time secondary teachers spend in economic instruction, at the .01 level; state mandates, personal interest in economics and support (or pressure) from school administrators. Secondary teachers taught

economics because it was required by the state or local district regulations and other factors did not seem to be significant.

The factors that were significant, at the .01 level, in predicting the amount of time spent in teaching economics for the elementary teachers included; personal interest in economics, support (or pressure) from school administrators and the IPCFAP. Arkansas does mandate that economics be taught in grades kindergarten through six but the requirements are ill defined and not enforced so that state mandates are not important as an influence, at least as they regard economics instruction. Elementary teachers are motivated by an interest in the awards program and a general interest in the subject matter of economics. Indications from the workshop surveys and past research (14,310) are that much of this interest was generated or enhanced by a very positive workshop experience.

This result is not surprising. The workshop materials and experience were not significant predictors of the amount of time a teacher spends teaching economics primarily because the respondents universally praised or gave high ratings to the materials; 89% said that the quality of the materials influenced their use of economics in the curriculum. All respondents also indicated strong support for including economics in the curriculum regardless of whether or not they used it in their classroom presentations.

The only factor that is surprising is the significance of the IPCFAP as a predictor for elementary level teachers. This one element is unique to the experience of Arkansas, and a few other states that place some emphasis on the IPCFAP. Arkansas has an outstanding reputation for creating award winners, especially at the elementary level. Since these award winners are used exclusively as curriculum consultants in the workshop they are highly visible to the workshop participant. The success of that program in Arkansas is due in large part to the effect of using winning teachers. At the same time the workshop is the breeding ground for the winners of the future IPCFAP.

3) Providing additional incentives to encourage creative teaching in general, as well as, with respect to economics instruction.

Teachers have given high ratings to the creative materials used in the workshop and the staff is certain that these are not only being used but that the creativity does rub off in other areas of the curriculum. The only direct evidence is in the number of IPCFAP winning teachers that have been past graduates of Arkansas' Summer Workshops. Arkansas has had a total of 334 award winning teachers from 37 districts, which is greater than any other state. The majority, 89%, of these award winners are past workshop participants. The IPCFAP is highly visible during the workshops and teachers are encouraged to enter. Each curriculum consultant is asked to identify star pupils who are contacted to see if they are interested in submitting an entry for the IPCFAP. The star pupils are also invited to a special statewide workshop to help them prepare for the program.

There is certainly evidence that teachers are using the materials and services of the state network as reflected in the growth in the number of DEEP schools and the general demand for

services from both the ASCEE and local centers. This particular goal deserves further investigation.

4) Informing teachers of the services provided by the DEEP network in the state.

All of the programs of the ASCEE and its affiliated centers are used to advertise the services available through the network and encourage district and individual participation. This form of advertising has been critical in generating interest in program services resulting in dramatic growth in participation. The number of DEEP Districts in Northeast Arkansas alone has grown from 10 in 1986 to 31 in 1990. Teacher participation in the EEP programs increased 61% during the same four years and this does not include increased participation in statewide programs.

The other center workshop programs were not included in this research;however, an examination of the raw data from the surveys and test indicate similar experiences. The Arkansas Summer Workshops have always followed a similar formula for success which includes;

1. Using economists to explain basic economic principles.
2. Using award winning teachers currently serving in classroom positions from around the state.
3. Including panel discussions and presentations from business, agriculture, labor and government.
4. Incorporating field trips and special educational presentations.
5. Exposing teachers to media and print material for classroom use.
6. Organizing teachers into grade level groups for curriculum sessions.

This formula has proven to be highly successful and the thrust of the ASCEE efforts in preparing teachers for instruction in economics at all grade levels. The noncredit workshops and seminars have been designed as enrichment supplements and platforms to encourage teachers to attend the summer workshop program.

ADMINISTRATIVE SUPPORT FROM THE PUBLIC INSTITUTIONS HOUSING THE CENTERS

Any successful economic education program must have the full support and cooperation of the university administration from the president to the chair of the department in which the program is located. The administration must be convinced of the value of the program, both to the university and the region to be serviced, before that support can be attained. It is extremely important that the university administration be fully informed of the overall objectives of the program and the action plan that the state council and program director have established to achieve those objectives. Once this process has occurred and the administration has given its sanction and support, progress tends to feed on itself. Program accomplishments tend to strengthen the university's commitment and support which, in turn, enhances and insures still greater achievements on the part of the program director. Another prerequisite for a successful program is that the program director must be not only committed to the concept of economic education but also thoroughly familiar with the school environment in which the

economic education program is ultimately delivered. That will vary from state to state depending on legislative and Department of Education mandates, funding, community support and the past experiences of the faculty and staff. He/she must be able to communicate effectively with the public school personnel, both administrators and teachers.

Arkansas State University administration recognized the value of the goals of the Arkansas economic education program very early in the development of that movement. ASU's initial involvement in the program was during the summer of 1967 when it cosponsored a summer workshop with the ASCEE. Since that time ASU has conducted 22 workshops with 1,138 teacher-participants in attendance. Dr. Carl R. Reng, who was president of ASU at that time, committed the university to a cooperative and supportive role in fostering the cause of economic education, a commitment that has been honored and strongly endorsed by each of the four presidents who has served since Dr. Reng's retirement, including the current president, Dr. Eugene Smith. Most of the presidents have served on the ASCEE and two have served as members of the Executive Committee, including Dr. Smith.

The College of Business likewise has been strongly committed to the Arkansas economic education program. The college has been served by two deans since 1967, both of whom have promoted the growth of the program. The current dean served as the director of the first three summer workshops in 1967-69. He has served as a member of the ASCEE since 1980 and as a member of the Executive Committee from 1980-1983. He has served as a resource person for many of the summer workshops and has been instrumental in an effort to obtain funding to endow a Center for Economic Education at ASU.

The Economic Education Program is located in the Department of Business Administration and Economics. Again, the department chair is an active advocate of the program and served as workshop director for 13 years. He works very closely with the current program director and provides support insofar as resources will permit.

In addition to providing space for the program director, office workers and a curriculum library, the university makes a small contribution toward the cost of the summer workshops and allows the fees and tuition of the workshop participants to be used in defraying the cost of the workshops. The Office of Development at ASU is working with the College of Business to seek funding to fully endow a Center for Economic Education. A goal of $500,000 has been set for this program and significant progress has been made toward reaching that goal. ASU made the decision in 1986 not to wait until the center was fully endowed to begin providing services to the public schools and functioning as a center. A director was hired that year and a limited outreach program was established. The ASCEE also has assisted in getting the program started by providing an enormous amount of materials, some funding to help defray travel expenses and invaluable advice.

Administrative backing has proven to be a critical element in the success of the Arkansas program by allowing the director the freedom and flexibility necessary to administer an effective program and to be properly recognized and rewarded for those efforts. The

university must recognize that an effective program will require a great deal of time and attention. The director will need greater discretion in setting schedules for university duties in order to travel and plan workshops and activities for the area schools. Time spent on economic education projects will reduce the time available for committee service, writing and other duties important in promotion and tenure. The director must feel secure that the position and promotion in rank are not being jeopardized as a result of extensive involvement with the schools.

A major benefit derived from the program has been one of bringing together university personnel and other important segments of the community; agriculture, business, labor, banking, chambers of commerce, government, public and private schools, etc. Each of these segments has strongly supported ASU and the ASCEE in the economic education movement and in doing so has developed a genuine spirit of cooperation between and among themselves. University personnel have gained a greater understanding of the role of the various community segments in the process of economic change and a greater appreciation for the problems they have encountered over time.

Beyond the summer workshops and in-service seminars, the DEEP program now serves to focus even greater attention on enriching the K-12 curriculum. The students in our public schools will benefit from a systematic approach to the integration of economic understanding into their learning experience. ASU administrators are pleased to be a part of this phase of the economic education program and are especially pleased with the involvement and accomplishments of our center and its director in the intensified phase of the Arkansas economic education program.

ASU has enjoyed a superb working relationship with the ASCEE since the first workshop in 1967. Administrators of both institutions have come and gone in the meantime; however, the excellent relationship has remained. The primary reason for the continued cooperation stems from the fact that both parties were and are fully convinced of the potential value of the program and have been furnished unquestionable evidence over the years that the program is paying significant dividends in educating our public school teachers and future citizens in a deeper understanding of the U.S. economy, how it works and how it relates to other economies around the world. The ASU-ASCEE partnership has been strengthened over the years as each has witnessed the impact of the cooperative programs on the economic literacy in the public schools of Arkansas. Administrative support has been important in the development of the other two centers in the state network. The Bessie B. Moore Center, located at the University of Arkansas-Fayetteville, and the M.H. Russell Center for Economic Education, located at Henderson State University, have enjoyed administrative leadership that has permitted their programs to grow and prosper. Administrators at both institutions have served actively on the various boards of the ASCEE. Their patterns of development through administrative channels have followed a model very similar to that of ASU beginning with a long-term commitment to the summer workshop program. This has proven to be a most successful marriage.

CONCLUSIONS

The Arkansas DEEP Model is designed to take maximum advantage of the unique conditions opperating in our state. Every aspect of the program may not be effective in other regions but some of the lessons learned can be applied to other areas. This model was not set in place from the very beginning but evolved with the maturity of the program over a 26 year period.

Other important factors have contributed to the overall success of the program. Much of the success of the model is due in large part to the long track record of the ASCEE and its' affiliated centers. The Staff of the ASCEE and the affiliated centers has remained extremely stable over the past 26 years providing an important continuity to the overall program. The newest member of the team, Dr. Larry R. Dale, has been with the Economic Education Program at ASU since 1986 and the other staff have been with the program for 10 years or more. School administrators give tremendous support to the program because of that established record and no economic education program can succeed without the support of the state's school administrators.

The business community has provided consistent support to the program, both financial and physical, that has not been equalled by many states with larger populations and more substantial financial resources.

The state government also has made some important contributions, primarily through the efforts of the Arkansas Department of Education. Besides some financial and administrative support, the Department of Education has mandated the teaching of economics at the elementary and secondary levels although those mandates are fairly new and have yet to be effectively established and monitored. In 1974 the state of Arkansas passed legislation requiring a course in Economic Education, economics courses do not count toward this requirement, for all elementary education majors in order to be certified. This important legislation has been somewhat diminished by the lack of standards in the teaching of the class among the many diversified public and private institutions within the state.

These other factors play some role in the success of the Arkansas Program but the single most significant element is the DEEP Model used in the state. The research indicates that the money spent on economic education has been effective in raising the level of economic literacy among teachers. Further research, performed at the national level using students from Arkansas as well as other states, indicates that much of this has had its intended affect on students, particularly in the DEEP school systems [32,255]. The next step is to insure that all students in the state receive some effective instruction in the important area of economics.

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CHART 1: COMPARISON OF PREWORKSHOP TEST PERFORMANCE (PETMS) WITH POSTWORKSHOP TEST PERFORMANCE (POTMS)
ARKANSAS STATE UNIVERSITY WORKSHOPS 1971 - 1988

YEAR	RANGE PETMS	PETMS	RANGE POTMS	POTMS	DIFFER PETMS AND POTMS	N	X^2
1971	10 - 25	16.90	11 - 28	21.55	+4.65	106	.0089 *
1972	9 - 29	17.15	12 - 39	22.00	+4.85	106	.0073 *
1973	8 - 40	17.16	11 - 29	21.65	+4.50	93	.0181
1974	7 - 32	17.30	15 - 32	22.40	+5.10	88	.0032 *
1975	11 - 33	18.77	8 - 35	22.49	+3.72	68	.0919
1976	11 - 31	19.11	9 - 42	25.17	+7.06	NA	NA
1977	12 - 31	17.82	8 - 39	21.23	+3.41	72	.1114
1978	-	-	-	-	-	-	-
1979	11 - 32	21.50	15 - 44	27.97	+6.47	58	.0031 *
1980	14 - 46	30.42	17 - 46	36.56	+6.14	74	.0047 *
1981	6 - 20	10.58	13 - 26	20.42	+9.84	43	.0009 *
1982	11 - 20	17.77	12 - 28	22.46	+4.69	51	.0093 *
1983	12 - 26	19.52	21 - 38	30.41	+10.89	59	.0001 *
1984	11 - 27	18.69	12 - 36	29.94	+11.25	54	.0001 *
1985	7 - 30	17.65	11 - 39	24.96	+7.31	95	.0033 *
1986	8 - 26	19.19	15 - 38	30.25	+11.06	59	.0001 *
1987	10 - 35	20.01	15 - 38	29.50	+8.50	60	.0008 *
1988	9 - 32	22.70	17 - 46	35.11	+12.41	64	.0000 *

* Significant at the .01 level

CHART 2: PARTICIPANT RATINGS OF THE ARKANSAS STATE UNIVERSITY ECONOMIC EDUCATION WORKSHOP FOR SELECTED YEARS

OPINION RATING	YEAR	EXCELLENT	GOOD	FAIR	POOR	NO
OVERALL WORKSHOP	1980	5%	61%	-	-	24%
	1984	28%	22%	4%	-	46%
	1986	20%	25%	13%	-	42%
	1987	58%	40%	2%	-	-
COURSE CONTENT AND MATERIALS	1980	3%	66%	4%	-	27%
	1984	28%	22%	-	-	50%
	1986	17%	29%	8%	2%	44%
	1987	66%	24%	9%	-	1%
STAFF WORKSHOP	1980	5%	69%	-	-	26%
	1984	27%	23%	4%	-	46%
	1986	50%	30%	18%	-	2%
	1987	70%	24%	6%	-	-

CHART 3: PERCENTAGE OF TIME SPENT TEACHING ECONOMIC BY WORKSHOP GRADUATES AND CONTROL GROUP

GROUP	NONE	1 TO 10%	11 TO 25%	26 TO 50%	50 TO 100%
WORKSHOP GRADUATES					
ELEMENTARY TEACHERS	17%	39%	31%	11%	2%
SECONDARY TEACHERS	20%	2%	20%	43%	15%
CONTROL GROUP					
ELEMENTARY TEACHERS	63%	27%	7%	3%	-
SECONDARY TEACHERS	44%	41%	2%	3%	10%

Ho: There is no significant difference between the time spent teaching economics by graduates of economic education workshops than by a general population control group of randomly selected teachers.

$\underline{x2}$ statistic rejected at the .01 level Elementary .0000
Secondary .0031

CHART 4: MULTIPLE REGRESSION ANALYSIS STATISTICS PREDICTING THE SIGNIFICANCE OF FIVE FACTORS TO THE TENDENCY OF TEACHERS TO INCLUDE ECONOMICS IN THEIR INSTRUCTION

FACTOR	ELEMENTARY TEACHER GROUP	SECONDARY TEACHER GROUP
STATE MANDATE OF INSTRUCTION IN ECONOMICS	.6901 (NOT SIGNIFICANT)	.0005 (SIGNIFICANT)
PERSONAL INTEREST IN ECONOMICS	.0000 (SIGNIFICANT)	.0002 (SIGNIFICANT)
ADMINISTRATIVE SUPPORT FOR ECONOMICS	.0093 (SIGNIFICANT)	.0062 (SIGNIFICANT)
THE IPCF AWARDS PROGRAM	.0008 (SIGNIFICANT)	.6723 (NOT SIGNIFICANT)
THE WORKSHOP EXPERIENCE	.9393 (NOT SIGNIFICANT)	.6734 (NOT SIGNIFICANT)

CHART 5: SURVEY RESULTS ON FACTORS INFLUENCING TEACHER USE OF ECONOMICS COURSE MATERIAL AND SUBJECT MATTER IN THEIR CURRICULUM
ARKANSAS STATE UNIVERSITY WORKSHOPS 1985 - 1988

FACTOR	VERY IMPORTANT	IMPORTANT	NO OPINION	NOT IMPORTANT	NOT RELEVANT
STATE MANDATE IN ECONOMICS	15%	50%	13%	9%	13%
PERSONAL INTEREST IN ECONOMICS	19%	69%	6%	-	7%
SUPPORT FROM SCHOOL ADMINISTRATORS	13%	37%	19%	15%	17%
IPCFAP	6%	24%	26%	24%	20%
WORKSHOP MATERIALS AND EXPERIENCES	43%	46%	4%	4%	4%
IMPORTANCE TO STUDENTS	43%	50%	2%	6%	-